PRACTICE RECOMMENDATIONS FOR TYPE 1 AND TYPE 2

PROCEDURE	FREQUENCY	ACTION
HbAlc	At least twice a year[1]	If HbA1c > 8% (see Appendix A)
Complete Foot Examination - including visual inspection and neurovascular examination	At least once a year [2,3,4]	See Appendix B
Dilated Eye Examination By an ophthalmologist or optometrist knowledgeable and experienced in diagnosing diabetic retinopathy	**Type 1:** Annually beginning 5 years after onset [5,6,7] **Type 2:** Annually beginning at time of diagnosis [5,6,7]	If diabetic retinopathy is detected, follow-up referral to an ophthalmologist who is knowledgeable and experienced in treating diabetic retinopathy
Blood Pressure	At least two times a year [8, 1]	If BP is> 130/85 (see Appendix C)
Urine Microalbumin Test	**Type 1:** Annually beginning 5 years after onset** [9] **Type 2:** Annually beginning at diagnosis.[9] **If gross proteinuria is present earlier, see appendix D.	If microalbuminuria or gross proteinuria detected (see Appendix D)
Lipid Profile	Annually. If low risk over two consecutive years, may decrease frequency to every 2-5 years.[10]	In accordance with the National Cholesterol Education Program (NCEP) guidelines
Self Monitoring of Blood Glucose (SMBG)	Should be encouraged in all patients to help reach & maintain their treatment goals [11,12, 1,13]	See Appendix E
Education Provided by a registered, licensed, or certified health professional with training in diabetes education	Initial self management instruction and annual follow-up [12, 1,13,14]	Minimum of 2 hours individual instruction or 8 hours of group classes at time of diagnosis. Minimum of 1 hour review annually thereafter (see Appendix F)
Tobacco Use Assessment	Initially and annually, if less than age 25 years or former smoker. [15]	Current smoker 1. Strongly urge all smokers to quit 2. Identify smokers willing to make a quit attempt 3. Assist the patient in quitting (pharmacologic therapy, appropriate referral, etc.) 4. Schedule follow-up contact.
Preconception Counseling	At time of initial visit in all women of childbearing potential or upon reaching childbearing age. [16]	See Appendix G
Immunizations	Yearly - Influenza [17] Once - Pneumococcal [18] Every 10 years - Tetanus Diphtheria [19]	See Appendix H
Oral/Dental Screening	Annually [20,21]	See Appendix I
ASA Prophylaxis	Unless contraindicated, start low dose ASA prophylaxis, if vascular risk factors, coronary artery disease, cerebrovascular disease, or peripheral vascular disease present. [22,23]	See Appendix J

APPENDIX A - HbA1C

The risk of development or progression of microvascular complications is decreased as HbA1c values are lowered. The American Diabetes Association recommends a goal of HbA1c <7% and suggests that physicians re-evaluate the treatment regimen of patients with HbA1c values that are consistently >8%.[1]

CATEGORY OF PATIENT	RECOMMENDED PROCEDURE	SCHEDULE
≤8.0% Lower risk / Stable	HbA1c	Every 6 months
>8.0% Higher risk / Poor control	1) HbA1c 2) Assessment and management of specific physiological and behavioral reasons for poor control	Every 3 months

APPENDIX B - COMPLETE FOOT EXAMINATION

Early detection and management of diabetic neurovascular foot complications have been shown to significantly decrease the incidence of diabetic foot ulcers and lower limb amputations.[2,3,4]

CATEGORY OF PATIENT	RECOMMENDED PROCEDURE	SCHEDULE
0 No loss of protective sensation (LOPS)*	1) Visual exam with shoes and socks off, by MD, RN, or trained personnel. 2) Complete exam including visual inspection, neurovascular examination, and risk categorization.	1) At all regularly scheduled diabetic visits 2) Annually and with each new abnormality
1 LOPS*	1) Complete exam as above 2) Soft insoles	At all regularly scheduled diabetic visits
2 LOPS* Pressure(callus / deformity), or decreased circulation	1) Complete exam as above 2) Specialty care by podiatrist, orthopedic surgeon, vascular surgeon, or physiatrist experienced in the management of diabetes 3) Custom-insoles 4) Prescription footwear	1) At all scheduled diabetic visits 2) Every 3-4 months
3 LOPS* Plantar ulcer(or history), or neuropathic fracture	Same as Risk Category 2	As above More frequent specialty care prn

** Sensory testing with 5.07(10 gm) nylon monofilament, applied perpendicularly until monofilament buckles. LOPS if no perception present at ≥1 site(plantar surface of 1st or 5th toes, or 1st, 3rd, or 5th metatarsal heads).*

Appendix C - Blood Pressure Screening

Early detection and treatment of hypertension decreases the risk of vascular complications of diabetes. [8, 1]

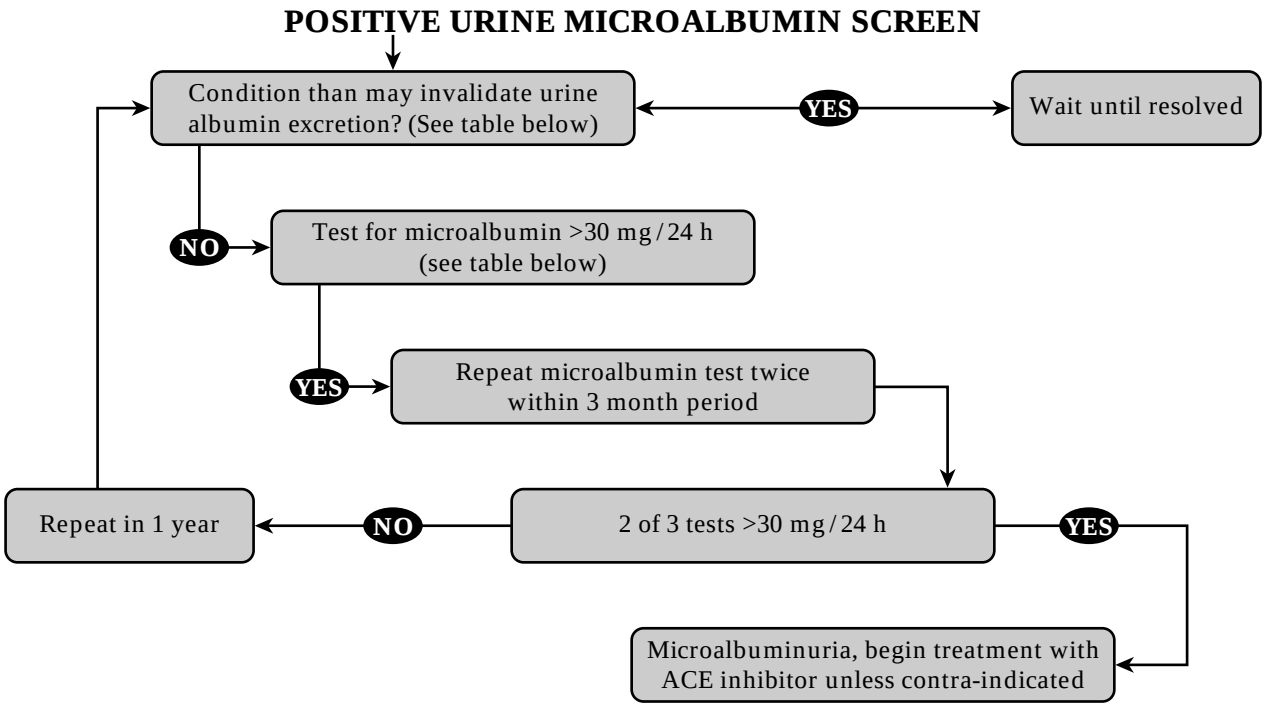
Category of Patient	Recommended Procedure	Schedule
A. Persons with type 1 or type 2 diabetes	Blood Pressure measurement	Minimum semi-annually
B. Persons with type 1 or type 2 diabetes who have documented blood pressure of systolic > 130 or diastolic > 85 mmHg measured on at least 3 occasions	Exclude secondary causes of HTN. Start ACE inhibitor* unless contraindication and add other hypertensive as needed to achieve blood pressure control.	Minimum of every 3 months

**Since ACE inhibitors have been shown to retard the progression of renal disease in type 1 diabetes, they are a logical first choice if no contraindications exist. Other antihypertensives that reduce proteinuria include certain calcium channel blockers (diltiazem, verapamil).*

Appendix D - Early Nephropathy Detection

Early detection of diabetic nephropathy can lead to interventions such as treatment with an ACE inhibitor and improved glycemic control which have been shown to retard the progression of renal disease even in normotensive patients. [9]

Category of Patient	Recommended Procedure	Schedule
Persons with type 1 or type 2 diabetes and no known proteinuria	**Option 1:** A two step screening for proteinuria: a) Standard urinalysis or dipstick to determine gross proteinuria (exclude transient causes and verify) b) For those negative for gross proteinuria, a test for microalbuminuria. **Option 2:** Test for microalbuminuria **Both options:** If positive for microalbuminuria, see Figure below.	Type 1: Start 5 years after diagnosis, then annually Type 2: Annually beginning at diagnosis.



See following page for definitions of abnormalities in albumin excretion

TABLE 1. DEFINITIONS OF ABNORMALITIES IN ALBUMIN EXCRETION

CATEGORY	24-H COLLECTION	TIMED COLLECTION	SPOT COLLECTION
Normal	<30 mg / 24 h	<20 mg / min	<30 mg / g creatinine
Microalbuninuria	30-300 mg / 24 h	20-200 mg / min	30-300 mg / g creatinine
Clinical albuminuria	>300 mg / 24 h	>200 mg / min	>300 mg / g creatinine

Because of variability in urinary albumin excretion, two of three specimens collected within a 3 to 6 month period should be abnormal before considering a patient to have crossed one of these diagnostic thresholds. Exercise within 24 h, infection, fever, congestive heart failure, marked hyperglycemia, and marked hypertension may elevate urinary albumin excretion over baseline values.

APPENDIX E - SELF MONITORING OF BLOOD GLUCOSE (SMBG)

BLOOD GLUCOSE GOALS (MG/DL)

Before Meals	80 - 120
Bedtime	100 - 140
1 1/2 to 2 h postprandial	< 180

FREQUENCY: Frequency of SMBG should be individualized for each patient based on clinical circumstances, type of treatment, and treatment response. More frequent testing is indicated with changes in therapy, changes in activity level, changes in meals, when hypoglycemia is suspected, on travel days, or on sick days. [11,12, 1,13]

REVIEW: SMBG logs should be reviewed at all regularly scheduled diabetes visits or whenever more frequent testing, as discussed above, is done. [11,12, 1,13]

APPENDIX F - DIABETES EDUCATION

The following topics should be reviewed at the time of the initial educational intervention. Selected topics should be reviewed annually as appropriate to patients' individual needs. [12, 1,13,14]

1. Diabetes overview
2. Stress and psychosocial adjustment
3. Family involvement and social support
4. Nutrition
5. Exercise and activity
6. Medications
7. Monitoring and use of results
8. Relationships among nutrition, exercise, medication, and blood glucose levels
9. Prevention, detection, and treatment of acute complications
10. Prevention, detection, and treatment of chronic complications
11. Foot, skin, and dental care
12. Behavior change strategies, goal-setting, risk factor reduction, and problem solving
13. Benefits, risks, and management options for improving glucose control
14. Preconception care, pregnancy, and gestational diabetes
15. Use of health care systems and community resources

Appendix G - Preconception Counseling

Category of Patient	Recommended Procedure	Schedule
Women with type 1 or type 2 diabetes	Preconception counseling to include: 1. Assessment and optimization of diabetic control 2. Evaluation of macrovascular and microvascular complications including a dilated eye exam. 3. Cardiac risk factor evaluation including an ECG in women with significant risk factors or in women with diabetes longer than 10 years. 4. Family planning method. 5. Potential risks to fetus and mother 6. Education regarding importance of preconception control of blood glucose and blood glucose goals during pregnancy. 7. Medication change during pregnancy to include discontinuing ACE inhibitors and substituting insulin for oral diabetic medications	Counseling should occur when the young woman with diabetes reaches child bearing age or as an adult, during the first visit, or whenever the woman's potential for child bearing increases.[16]

Appendix H - Immunizations

Immunizations should be given to prevent or reduce the severity of influenza infection, tetanus, diphtheria, and pneumococcal disease.

Vaccine	**Frequency**
Influenza*	Yearly [17]
Pneumococcal**	Once [18]
Tetanus Diphtheria (Td)	Every 10 years [19]

Pneumococcal revaccination is recommended once in:

1. Persons aged 65 years who received vaccine 5 years previously and were aged <65 years when first vaccinated.

2. Persons aged 2-64 years with functional or anatomic asplenia: If aged >10 years give single revaccination 5 years after previous dose. If aged <10 years give revaccination 3 years after previous dose.

3. Immunocompromised persons (including those with HIV infection, hematologic or generalized malignancy, chronic renal failure or nephrotic syndrome; those receiving immunosuppressive chemotherapy (including corticosteroids), and those who have received an organ or bone marrow transplant. Give single revaccination if > 5 years since first dose, if aged <10 years give revaccination 3 years after previous dose.

**Influenza vaccine is contraindicated in those with any hypersensitivity to any component of the vaccine, chicken products, or egg protein.*

***Pneumococcal vaccine is contraindicated in those who have had a prior reaction to any component of the vaccine*

APPENDIX I - ORAL/DENTAL SCREENING

Periodic dental examinations are indicated to decrease the incidence of oral infections and decayed, missing, or filled teeth. [20,21]

RISK CATEGORY	PROCEDURE	FREQUENCY
Type 1 or type 2 diabetes	Oral screening of teeth and soft tissue. Immediate referral to dentist if indicated.* Recommend annual visit to dentist. Determine source of regular dental care	Annually

**Refer for immediate dental evaluation prn: extensive caries, marked xerostomia, extensive periodontal disease (mobile teeth due to alveolar bone loss, heavy calculi and debris), poorly fitting full or partial dentures, observable oral lesions.*

APPENDIX J - ASPIRIN (ASA) PROPHYLAXIS

Low dose aspirin therapy is effective in reducing cardiovascular events in persons with diabetes who have known cardiovascular disease or risk factors for cardiovascular disease. [22,23]

RISK CATEGORY	PROCEDURE	FREQUENCY
A. Persons with type 1 or type 2 diabetes with coronary artery disease, cerebrovascular disease, or peripheral vascular disease.	Start low dose ASA prophylaxis unless contraindicated.*	At onset, or documentation of positive past history of coronary artery disease, cerebrovascular disease, or peripheral vascular disease.
B. Persons with type 1 or type 2 diabetes with vascular risk factors.**	Start low-dose ASA prophylaxis unless contraindicated.*	At onset of vascular risk factors after age 40 years.

** Low-dose ASA prophylaxis can range from 75 mg qd to 325 mg qd.*
*** Hypertension, cigarette smoking, obesity >120% IBW, hyperlipidemia, or albuminuria >30 mg/24 hours.*

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